

CLAIMS

We claim:

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1. A method for evaluating a specimen comprising the steps of:
 - (1) obtaining a plurality of images of the specimen along a plurality of planes defining the thickness of the specimen, in which the plurality of images comprise at least two images taken at different angles relative to each other;
 - (2) cross-correlating information obtained from the angled views to produce a single output image for the each one of the plurality of planes to define a plurality of confocal emulated images.
 2. A process of Claim 1 further comprising an additional step:
 - (3) stacking the plurality of confocal emulated images to produce a three-dimensional reconstruction of the specimen.
 3. A method of Claim 1 wherein the all the images are obtained in the same plane and plane area, the locations of said plane and area relative to said specimen being the same at the time all images are obtained.
 4. A method of Claim 1 wherein, in step (1), each image is obtained on a surface comprising a regular arrangement of pixels, each pixel capable of representing absorbed light so that information on both the frequency and intensity of the light absorbed is computer readable.

5. A method of Claim 4 wherein, in step (2), the information cross-correlated comprises light frequency information and intensity absorbed by each pixel.

6. A method of Claim 5 wherein the cross-correlation comprises a cross correlation of information between a linearly arranged sequence of pixels from each image, the sequences at least partially overlapping.

7. A method of Claim 6 wherein the cross-correlation will, for purposes of constructing a confocal emulated image, score as undesirable that specific image information that is displaced in one image relative to the other and will score as desirable that specific image information that is not displaced in one image relative to the other, and further for purposes of constructing a confocal emulated image will tend to retain desirable information and to eliminate undesirable information.

8. A tomographic microscope for evaluating a specimen comprising:

- (a) a means for obtaining a plurality of images of the specimen along a plurality of planes defining the thickness of the specimen, in which the plurality of images comprise at least two images taken at different angles relative to each other;
- (b) a means for cross-correlating information obtained from the angled views of step (a) to produce a single output image for each one of the plurality of planes comprising a confocal emulated image for each one of the plurality of planes to define a plurality of confocal emulated images.

9. A device of Claim 8 further comprising a means for stacking the plurality of



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